



# Marshal Geo Test Laboratory

For Testing of Civil Engineering Materials

## TEST - REPORT

Date:- 16/11/2021

T.R. No. / MGTL / TRR / R-0911213/001

To,  
The Executive Engineer ( Civil )  
Civil Division CSPTCL,  
Raipur (C.G.)

Subject :- Test result of Soil Sample for the proposed Construction of 132 / 33 KV S/s Temri.

Your Ref.:- Letter No.:- EEC/Civil Dn./WO/1308 Raipur Dtd.:- 08/11/2021

Sample ID Mark :- Pit No.-01, ( Gaintry ), Depth- 1.50 m.

Dear Sir,

Vide subject and reference cited above, the test results report is as follows: -

### Mechanical Testing

### Soil and Rock ( Clays & Soils )

#### PARTICULAR OF SAMPLE (S)

Nature:- Disturbed Soil Sample

Sample No.(S) Details:- One Sample

Dt. of Receipt in the Lab :-09/11/2021

Testing Dt. :- 09/11/2021

LAB JOB NO. :- R-2111093/001			TEST RESULT	
S. No.	Parameters	Test Method	Result	Unit
1	Type of Soil	As per IS 2720 Part XI (RA-2016) ( Unconsolidated - Undrained ) Triaxial Test	( CI ) Inorganic Clay of Medium Plasticity	
2	Depth form EGL		1.50 m.	
3	Bulk Density ( Remoulded )		2.09	t/m <sup>3</sup>
4	C <sub>u</sub> Value of Soil		3.15	t/m <sup>2</sup>
5	Φ <sub>u</sub> Value of Soil		6.4	degree
6	Gross Safe Bearing Capacity		7.69	t/m <sup>2</sup>

- Remark:-
1. The SBC is calculated based on shear failure criteria.
  2. The SBC has been computed taking 1m x 1m footing size.
  3. The ground water table variation is taken into consideration while calculation the SBC.
  4. This soil is susceptible to longterm consolidation settlement.

Verified by  
Himanshu R Varma  
( Geotechnical Engineer )

Authorised Signatory  
V. Avinash  
( TM )

Note:-

- 1 Samples Drawn by us, unless otherwise mentioned.
- 2 Samples may be destroyed / Removed away from Laboratory after Testing, unless otherwise particular request is made.
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\*\*\*\*\*END OF REPORT\*\*\*\*\*





# Marshal Geo Test Laboratory

For Testing of Civil Engineering Materials

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& Quality Certification  
Directorate  
UDYAM-CG-14-0000899

**SHEET 1 OF 2**

T. R. No. / MGTL / TRR / R-0911213/002

Date:-16/11/2021

To,  
The Executive Engineer ( Civil )  
Civil Division CSPTCL,  
Raipur (C.G.)

Subject :- Test result of Soil Sample for the proposed Construction of 132 / 33 KV S/s Temri.

Your Ref.: Letter No.: EEC/Civil Dn./WO/1308 Raipur Dtd.: 08/11/2021

Sample ID Mark :- Pit No.- 01 ( Gaintry ), Depth- 1.50 Mtr.

Dear Sir,

Vide subject and reference cited above, the test results report is as follows: -

## PARTICULAR OF SAMPLES (S) :-

Nature:- Soil Sample

Sample No.(S) Details:- One sample

Packing/Container :- Poly Bags

Dt. of Receipt in the Lab:- 09/11/2021

Testing Dt. :- 12/11/2021

LAB JOB NO.- R-2111093/002

S. No.	Name of Test	Test Method	TEST RESULTS	
			Results	Unit
A)	Soil Sample			
1	LL, PL & PI	As per IS : 2720 ( Part V )- 1985 (RA-2015)	As per table 1 below	%
2	Grain Size Analysis	As per IS : 2720 (Part IV )-1985 (RA-2015)	As per table 2 below	%

Table -1

LAB JOB NO.- R-2111093/002

Sr. No.	% of Fines	Type of Soil	TEST RESULTS		
			LL %	PL %	PI %
1	88.60	( CI ) Inorganic Clay of Medium Plasticity	41.00	21.26	19.74

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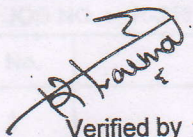
## SHEET 2 OF 2

Table -2

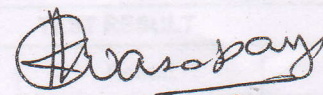
LAB JOB NO.- R-2111093/002

				TEST RESULTS	
Sr. No.	SIEVE SIZE (MM)	WT. RET.	% OF WT.RET	CUM.WT. RET.	PERCENTAGE FINER (%)
1	10	5.0	1.00	1.00	99.00
2	4.75	4.0	0.80	1.80	98.20
3	2	13.0	2.60	4.40	95.60
4	0.6	25.0	5.00	9.40	90.60
5	0.425	0.0	0.00	9.40	90.60
6	0.75	10.0	2.00	11.40	88.60
Gravel		Coarse Sand	Medium Sand	Fine Sand	Silt & Clay
1.80		2.60	5.00	2.00	88.60

Note :- 1) Soil Sample is expansive in nature.

  
Verified by

Himanshu R Varma  
( Geotechnical Engineer )



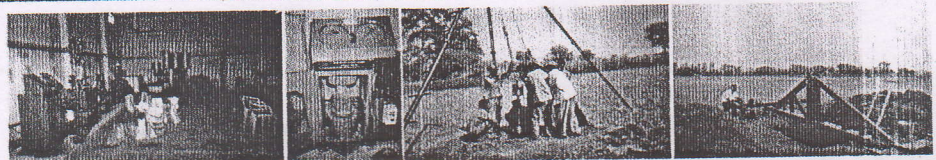
Authorised Signatory  
V. Avinash ( TM )

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\*\*\*\*\*END OF REPORT\*\*\*\*\*

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Directorate

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## TEST - REPORT

T.R. No. / MGTL / TRR / R-0911213/003

Date:- 16/11/2021

To,  
The Executive Engineer ( Civil )  
Civil Division CSPTCL,  
Raipur (C.G.)

Subject :- Test result of Soil Sample for the proposed Construction of 132 / 33 KV S/s Temri.

Your Ref.:- Letter No.:- EEC/Civil Dn./WO/1308 Raipur Dtd.:- 08/11/2021

Sample ID Mark :- Pit No.-02, ( Transformer ), Depth- 3.00 m.

Dear Sir,

Vide subject and reference cited above, the test results report is as follows: -

### Mechanical Testing

### Soil and Rock ( Clays & Soils )

#### PARTICULAR OF SAMPLE (S)

Nature:- Disturbed Soil Sample

Sample No.(S) Details:- One Sample

Dt. of Receipt in the Lab :-09/11/2021

Testing Dt. :- 09/11/2021

LAB JOB NO. :- R-2111093/003

#### TEST RESULT

S. No.	Parameters	Test Method	Result	Unit
1	Type of Soil	As per IS 2720 Part XI (RA-2016) ( Unconsolidated - Undrained ) Triaxial Test	( CI ) Inorganic Clay of Medium Plasticity	
2	Depth form EGL		3.00 m.	
3	Bulk Density ( Remoulded )		2.00	t/m <sup>3</sup>
4	C <sub>u</sub> Value of Soil		4.07	t/m <sup>2</sup>
5	Φ <sub>u</sub> Value of Soil		8.6	degree
6	Gross Safe Bearing Capacity		11.93	t/m <sup>2</sup>

- Remark:-
1. The SBC is calculated based on shear failure criteria.
  2. The SBC has been computed taking 1m x 1m footing size.
  3. The ground water table variation is taken into consideration while calculation the SBC.
  4. This soil is susceptible to longterm consolidation settlement.

*Himanshu R Varma*

Verified by  
Himanshu R Varma  
( Geotechnical Engineer )

*V. Avinash*

Authorised Signatory  
V. Avinash  
( TM )

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SHEET 1 OF 2

T. R. No. / MGTL / TRR / R-0911213/004

Date:-16/11/2021

To,  
The Executive Engineer ( Civil )  
Civil Division CSPTCL,  
Raipur (C.G.)

Subject :- Test result of Soil Sample for the proposed Construction of 132 / 33 KV S/s Temri.

Your Ref.: Letter No.- EEC/Civil Dn./WO/1308 Raipur Dtd.- 08/11/2021

Sample ID Mark :- Pit No.- 02 ( Transformer ), Depth- 3.00 Mtr.

Dear Sir,

Vide subject and reference cited above, the test results report is as follows: -

**PARTICULAR OF SAMPLES (S) :-**

Nature:- Soil Sample

Sample No.(S) Details:- One sample

Packing/Container :- Poly Bags

Dt. of Receipt in the Lab:- 09/11/2021

Testing Dt. :- 12/11/2021

LAB JOB NO.- R-2111093/004		TEST RESULTS		
S. No.	Name of Test	Test Method	Results	Unit
A)	Soil Sample			
1	LL, PL & PI	As per IS : 2720 ( Part V )- 1985 (RA-2015)	As per table 1 below	%
2	Grain Size Analysis	As per IS : 2720 (Part IV )-1985 (RA-2015)	As per table 2 below	%

Table -1

LAB JOB NO.- R-2111093/004		TEST RESULTS			
Sr. No.	% of Fines	Type of Soil	LL	PL	PI
			%	%	%
1	90.20	( CI ) Inorganic Clay of Medium Plasticity	41.00	19.95	21.05

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raipur.marshall@gmail.com  
Website : marshalgeoraiipur.com





# Marshal Geo Test Laboratory

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## SHEET 2 OF 2

Table -2

LAB JOB NO.- R-2111093/004

## TEST RESULTS

Sr. No.	SIEVE SIZE (MM)	WT. RET.	% OF WT.RET	CUM.WT. RET.	PERCENTAGE FINER (%)
1	10	0.0	0.00	0.00	100.00
2	4.75	7.0	1.40	1.40	98.60
3	2	8.0	1.60	3.00	97.00
4	0.6	24.0	4.80	7.80	92.20
5	0.425	0.0	0.00	7.80	92.20
6	0.75	10.0	2.00	9.80	90.20
Gravel		Coarse Sand	Medium Sand	Fine Sand	Silt & Clay
1.40		1.60	4.80	2.00	90.20

Note :- 1) Soil Sample is expansive in nature.

Verified by  
Himanshu R Varma  
( Geotechnical Engineer )

Authorised Signatory  
V. Avinash ( TM )

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## TEST - REPORT

Date:- 16/11/2021

T.R. No. / MGTL / TRR / R-0911213/005

To,  
The Executive Engineer ( Civil )  
Civil Division CSPTCL,  
Raipur (C.G.)

Subject :- Test result of Soil Sample for the proposed Construction of 132 / 33 KV S/s Temri.

Your Ref.:- Letter No.:- EEC/Civil Dn./WO/1308 Raipur Dtd.:- 08/11/2021

Sample ID Mark :- Pit No.-03, ( Control Room ), Depth- 2.00 m.

Dear Sir,  
Vide subject and reference cited above, the test results report is as follows: -

**Mechanical Testing**  
**Soil and Rock ( Clays & Soils )**

### PARTICULAR OF SAMPLE (S)

Nature:- Disturbed Soil Sample

Sample No.(S) Details:- One Sample

Dt. of Receipt in the Lab :-09/11/2021

Testing Dt. :- 10/11/2021

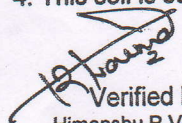
LAB JOB NO. :- R-2111093/005

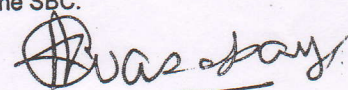
### TEST RESULT

S. No.	Parameters	Test Method	Result	Unit
1	Type of Soil	As per IS 2720 Part XI (RA-2016) ( Unconsolidated - Undrained ) Triaxial Test	( CI ) Inorganic Clay of Medium Plasticity	
2	Depth form EGL		2.00 m.	
3	Bulk Density ( Remoulded )		2.00	t/m <sup>3</sup>
4	C <sub>u</sub> Value of Soil		3.31	t/m <sup>2</sup>
5	Φ <sub>u</sub> Value of Soil		6.8	degree
6	Gross Safe Bearing Capacity		8.59	t/m <sup>2</sup>

Remark:-

1. The SBC is calculated based on shear failure criteria.
2. The SBC has been computed taking 1m x 1m footing size.
3. The ground water table variation is taken into consideration while calculation the SBC.
4. This soil is susceptible to longterm consolidation settlement.

  
Verified by  
Himanshu R Varma  
( Geotechnical Engineer )



Authorised Signatory  
V. Avinash  
( TM )

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SHEET 1 OF 2

T. R. No. / MGTL / TRR / R-0911213/006

Date:-16/11/2021

To,  
The Executive Engineer ( Civil )  
Civil Division CSPTCL,  
Raipur (C.G.)

Subject :- Test result of Soil Sample for the proposed Construction of 132 / 33 KV S/s Temri.

Your Ref.: Letter No.- EEC/Civil Dn./WO/1308 Raipur Dtd.- 08/11/2021

Sample ID Mark :- Pit No.- 03 ( Control Room ), Depth- 2.00 Mtr.

Dear Sir,

Vide subject and reference cited above, the test results report is as follows: -

## PARTICULAR OF SAMPLES (S) :-

Nature:- Soil Sample

Sample No.(S) Details:- One sample

Packing/Container :- Poly Bags

Dt. of Receipt in the Lab:- 09/11/2021

Testing Dt. :- 12/11/2021

LAB JOB NO.- R-2111093/006

S. No.	Name of Test	Test Method	TEST RESULTS	
			Results	Unit
A)	Soil Sample			
1	LL, PL & PI	As per IS : 2720 ( Part V )- 1985 (RA-2015)	As per table 1 below	%
2	Grain Size Analysis	As per IS : 2720 (Part IV )-1985 (RA-2015)	As per table 2 below	%

Table -1

LAB JOB NO.- R-2111093/006

Sr. No.	% of Fines	Type of Soil	TEST RESULTS			
			LL	PL	PI	
			%	%	%	
1	93.00	( CI ) Inorganic Clay of Medium Plasticity	42.00	20.13	21.87	

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Website : marshalgeoraipur.com





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## SHEET 2 OF 2

Table -2

LAB JOB NO.- R-2111093/006

Sr. No.	SIEVE SIZE (MM)	WT. RET.	% OF WT.RET	TEST RESULTS	
				CUM.WT. RET.	PERCENTAGE FINER (%)
1	10	0.0	0.00	0.00	100.00
2	4.75	8.0	1.60	1.60	98.40
3	2	7.0	1.40	3.00	97.00
4	0.6	12.0	2.40	5.40	94.60
5	0.425	0.0	0.00	5.40	94.60
6	0.75	8.0	1.60	7.00	93.00
Gravel		Coarse Sand	Medium Sand	Fine Sand	Silt & Clay
1.60		1.40	2.40	1.60	93.00

Note :- 1) Soil Sample is expansive in nature.

*[Signature]*  
Verified by

Himanshu R Varma  
(Geotechnical Engineer)

*[Signature]*

Authorised Signatory  
V. Avinash ( TM )

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